Annual Report for Period: 05/2010 - 04/2011
Submitted on: 01/28/2011
Principal Investigator: Kuo, Yu-Ju .
Award ID: 0966206
Organization: Indiana U of Pennsylvania
Submitted By:
Kuo, Yu-Ju - Principal Investigator
Title:
Scholarships-Creating Opportunities for Applying Mathematics

Project Participants

Senior Personnel

Name: Kuo, Yu-Ju
Worked for more than 160 Hours: Yes
Contribution to Project:
Carry out overall administration and interaction with NSF and other organizations;
Maintain S-COAM records and applicant records;
Develop recruitment material;
Coordinate recruitment and advertising activities;
Develop and update project website;
Screen applicants for eligibility;
Select scholarship recipients and determine required math courses for recipients;
Review students' progress;
Serve as a primary academic mentor for S-COAM;
Develop & update advising and curriculum guidelines;
Coordinate external speakers and workshops;
Coordinate annual scholarship banquet;
Develop surveys and distribute them to students from Qualtrics, a web-based survey software.

Name: Adkins, Frederick
Worked for more than 160 Hours: Yes
Contribution to Project:
Develop recruitment material;
Coordinate recruitment and advertising activities;
Develop and update project website;
Screen applicants for eligibility;
Select scholarship recipients and determine required math courses for recipients;
Review students' progress;
Serve as a primary academic mentor for S-COAM;
Develop & update advising and curriculum guidelines;
Coordinate external speakers and workshops;
Develop surveys;
Administer IUP-STEM group on Facebook.

Post-doc

Graduate Student

Name: Vargson, Jeffrey
Worked for more than 160 Hours: No
Contribution to Project:
provided clerical assistance by sorted incoming applications, creating and maintaining applicant files

Undergraduate Student

Technician, Programmer

Other Participant

Name: DeStefano, Alisa
Worked for more than 160 Hours: No
Contribution to Project:
reviewed students' financial need eligibility for compliance with scholarship requirements

Name: Stossel, Paula
Worked for more than 160 Hours: No
Contribution to Project:
provided consultation on recruiting graduate students and distributed informational brochures on scholarship

Name: Husenits, Mike
Worked for more than 160 Hours: No
Contribution to Project:
provided consultation on recruitment and a contact list of prospective undergraduate students; also distributed informational brochures on scholarship

Name: White, Elaine
Worked for more than 160 Hours: No
Contribution to Project:
provided administrative and clerical support including software purchasing, travel reimbursement, and mail sorting

Name: Alarcon, Francisco
Worked for more than 160 Hours: No
Contribution to Project:
obtained furnishings and allocated office space for student cohort and as department chair referred students as potential scholarship recipients

Name: Stoudt, Gary
Worked for more than 160 Hours: No
Contribution to Project:
served on scholarship review committee

Name: Wisloski, Greg
Worked for more than 160 Hours: No
Contribution to Project:
served on scholarship review committee

Name: Burch, Kimberly
Worked for more than 160 Hours: No
Contribution to Project:
served on scholarship review committee

Name: Lattanzio, John
Worked for more than 160 Hours: No
Contribution to Project:
served on scholarship review committee

Name: Radelet, Dan
Worked for more than 160 Hours: No
Contribution to Project:
served on scholarship review committee

Name: Maier, Christoph

Worked for more than 160 Hours: No

Contribution to Project:
chaired the internship committee, reviewed students' resumes, established internship opportunities, and gave a SAS workshop

Name: Anthony, Mark

Worked for more than 160 Hours: No

Contribution to Project:
provided presentation on career and internship opportunities for students in scholarship cohort and in the College of Natural Science and Mathematics

Name: Ritchey, Nathan

Worked for more than 160 Hours: No

Contribution to Project:
provided consultation on assessment practices and review of content for surveys

Research Experience for Undergraduates

Organizational Partners

Society For Industrial and Applied Math (SIAM)

SIAM's Visiting Lecturer Program (VLP) offers a valuable resource to chairpersons, colloquium organizers, student chapters, and undergraduate/graduate advisors - a roster of applied mathematicians in academia, industry, and government who are able to speak to students on a variety of topics.

The Visiting Lecturers are experienced speakers who, in addition to their accomplishments in applied mathematics, have been recommended for their commitment to education and their ability to reach students.

Dr. David Ross, Rochester Institute of Technology, gave two presentations and an informational question and answer session for students.

INFORMS

The INFORMS Speakers Program is designed to provide access to excellent speakers who are experts in operations research and the management sciences.
A speaker will give two presentations and an informational question and answer session for students.

Sigma XI Scientific Research Society

Sigma Xi Distinguished Lecturers communicate their insights and excitement to a broad range of scholars and to the community at large.

Dr. Laurie E. Locascio is the Chief of the Biochemical Science Division within the Chemical Science and Technology Laboratory, National Institute of Standards and Technology. She will present a lecture and a informational question and answer session for students.

MentorNet

MentorNet is the premiere and most experienced web-based e-mentoring program in the world.

In terms of use of personnel:
Each scholarship recipient has selected a mentor in engineering and science fields from MentorNet for one-on-one guided relationships regarding academic and career opportunities.

In terms of use of facilities, scholarship students utilize the organizations website:
Based on a series of questions, the MentorNet website searches and matches students with compatible mentors. Students use MentorNet website to network with other participants and review job postings.

Other Collaborators or Contacts

IUP Career Development Center-Director Mark Anthony gave a presentation on career and internship opportunities for students in scholarship cohort and in the College of Natural Science and Mathematics

IUP Office of Financial Aid- Alisa DeStefano reviews students' financial need eligibility for compliance with scholarship requirements.

IUP Office of Admissions - Director Mike Husenits provides consultation and contact list of prospective undergraduate students and distributes informational brochures on scholarship.

IUP Office of Financial Operations- Jack Zimmer provides accounting services.

IUP School of Graduate Studies and Research- Director of Marketing and Recruitment Paula Stossel provides consultation on recruiting graduate students and distributes informational brochures on scholarship.

Activities and Findings

Research and Education Activities: (See PDF version submitted by PI at the end of the report)

Headings below are our project goals and objectives. Activities completed in Fall 2010 or scheduled to complete in Spring 2011 are listed under appropriate sections.

Increase numbers of students with majors or minors in Mathematics

? Increase recruitment of students attending the M.S program in Applied Mathematics at IUP through efforts focused on the Pennsylvania State System of Higher Education and regional colleges

o In summer 2010, emails or brochures were sent to the chairs of related departments as well as the contact persons listed on various minority associations in Math and Science fields in Pennsylvania and nearby states.

o Recruiting trips to colleges in the Pennsylvania State System of Higher Education and regional colleges are planned for Spring 2011.

o Brochures were provided to the Director of Marketing in the School of Graduate Studies and Research to advertise the program in various recruiting events.

o Emails, letters, and/or brochures were sent to IUP alumnus and lists of students who took GRE in PA and nearby states.

? Expand recruitment of STEM undergraduates from regional community colleges

o Email or brochures were sent to the chairpersons of related departments in regional community colleges.

o Emails and letters were sent to transfer students from lists provided by the Office of Admission.

o Brochures were provided to Office of Admission to advertise the program in their recruiting trips.

? Increase retention of undergraduate students majoring in mathematical areas at IUP

o Multiple emails were sent to students in the College of Natural Science and Mathematics with 3.0 GPA who were close to or at least at the junior standing; female and minority students also received additional emails announcing this scholarship opportunity. Emails were sent to the chairs of departments in the College to solicit qualified students and co-organize events. Various minority associations at IUP were contacted to advertise the S-COAM program; and brochures and flyers were delivered to their offices for display.

Strengthen academic environment for entire department

o Co-PIs determine math course requirements for each student after carefully reviewing each individual's academic schedule and mathematical background. Each recipient is required to take additional mathematics courses and participate in at least one workshop/colloquium per month.

o In monthly meetings, the cohort activities include: orientation name games, mock interviews, resume critiques, and practice and critique of oral presentations. The cohort also shares an office space, Stright Hall 205.

o Every student selects his/her own mentor through MentorNet based on his/her own career/demographic preferences.

o Three mathematical software workshops (LINGO, SAS, and Arena) were offered in Fall 2010. We plan to offer a series of two Matlab workshops and a Mathematica workshop in Spring 2011. All workshops are announced to the entire IUP community through email.

o Dr. David Ross, a SIAM visiting lecturer from RIT, gave two presentations and a Q&A section on Nov. 3, 2010. Dr. Kaan Katircioglu from IBM, a speaker from INFORMS Speakers Program, is scheduled to visit IUP on April 21, 2011. These two speakers give presentations on their cutting edge research in different areas of applied mathematics and share their industrial work experience with students. Invited speakers' presentations are advertised and open to the entire IUP community. The Penn, the student newspaper of IUP, also reported Dr. Ross's visit. http://www.thepenn.org/news/math-department-welcomes-guest-lecturer-1.1740302

o S-COAM will also partially sponsor the IUP's annual spring Sigma-Xi lecture.

o Most continuing recipients are scheduled to give short oral presentations based on their research/class projects in Spring 2011 in preparation

of their participation in local/regional conferences.
o One student received a financial support of $380 for attending a state-wide conference in Fall 2010. We anticipate at least five students will participate or present in local/regional conferences in Spring 2011.
Ongoing broader impact
? Students will improve their communication and networking skills through participation in the MEAN mentoring activities.
o In monthly meetings, the cohort activities include: orientation name games, mock interviews, resume critiques, and practice and critique of oral presentations. The cohort also shares an office space, Stright Hall 205.
o A scholarship banquet will be held in Spring 2011. All scholarship recipients and their invited guests come together to celebrate their accomplishments.
o MentorNet is a e-mentoring program matching students with professionals in science and engineering for one-on-one guided relationships. Every student selects his/her own mentor through MentorNet based on his/her own career/demographic preferences.
? Students will explore workforce and career options.
o Director Mark Anthony from IUP Career Development Center gave a presentation on career opportunities and job hunting preparation.
o We also plan to offer an informational workshop on exams for graduate schools and entry-level licensing exams in Spring 2011.

Findings: (See PDF version submitted by PI at the end of the report)
Headings below are our project goals. The findings are listed under relevant sections.

Increase numbers of students with majors or minors in Mathematics
? Three students majoring in science declared an additional minor in mathematics. One of these science majors was previously majoring in nursing.

Strengthen academic environment for entire department
? All Fall 2010 students in the cohort group met the GPA target (>3.0 for undergraduate students and >3.2 for graduate students) and mathematics course requirements for Spring 2011 renewal. Three students graduated in December, 2010.
? Among 13 students in Fall 2010, 12 students attended three or more workshops/colloquia/conferences. Continuing students who attended less than four workshops/colloquia in Fall 2010 are required to attend additional events in Spring 2011. This active participation represents a change from students' self-reported prior attendance (increase for most students with nine of 13 students reporting no attendance in the previous year).
? There were a total of 21, 21, and 11 persons attending SAS, LINGO, and Arena workshop, respectively.
? There were at least 50 and 30 persons attending Dr. Ross's morning and evening presentations. The scholarship cohort students and three additional undergraduates also actively participated in Dr. Ross's Q&A session.

Ongoing broader impact

Students in the program were asked to provide feedback on how the program impacted or changed their educational goals. Below are comments indicating the program's ongoing impact.

'In addition, before becoming a member of the S-COAM program, I intended to take only the math classes required for my degree and wasn't really interested in taking any additional math courses. Now, however; I truly would like to take as many math courses as possible throughout my college years. There are so many branches of mathematics and an unimaginable amount of things that can be done with each branch and I would really like to gain a basic knowledge of as many of these branches as possible. After graduation, I hope to be able to use and apply as much of what I have learned mathematically as possible.'

'In recent months, S-COAM has helped me get connected to MentorNet, a website dedicated to connecting students to mentors in the fields of their study. I found this process to be highly beneficial in creating social links for easier transition from the academic to the professional environment; hopefully, these connections will bring me into a successful career. My mentor has been very helpful in guiding and motivating me when applying to various career opportunities. I'm not sure where these applications will take me but I'm persistent in pursuing that 'open door' opportunities. If nothing else, S-COAM has taught me that without great effort and right connections, it's hard to make it in professional society.'

'However, through this scholarship, I have learned the important of math within my major courses and future career which has only influenced me to continue taking additional math courses for the rest of my educational career.'

'Through the various workshops and seminars, I gained a newfound inspiration and drive to pursue a more advanced degree and research within

my field. These allowed me to understand the relevance of math in the field of physics and also enabled to learn software to manipulate mathematical equations through. Throughout the course of the semester, I was also given the opportunity to interact with Indiana University of Pennsylvania's mathematics graduate students which allowed me to gain a working knowledge of what is necessary to succeed in the scientific community.'

'Listening to Dr. David Ross and others has caused me to realized more than ever before that having some significant research experience outside of the classroom maybe an outstanding way for me to show independence, a willingness to work hard, and an overall will to succeed. For this reason, I have really been pushing myself at a pace ? at which we will be able to submit an article for publication before I graduate.'

Training and Development:

? Each recipient is required to take additional mathematics courses and participate in at least one workshop/colloquium per month.
? In monthly meetings, the cohort activities include: orientation name games, mock interviews, resume critiques, and practice and critique of oral presentations.
? Three mathematical software workshops (LINGO, SAS, and Arena) were offered in Fall 2010. We plan to offer a series of two Matlab workshops and a Mathematica workshop in Spring 2011. All workshops are announced to the entire IUP community through email.
? Dr. David Ross, a SIAM visiting lecturer from RIT, gave two presentations and a Q&A section on Nov. 3, 2010. A speaker from INFORMS Speakers Program is invited to visit IUP in the spring semester. These two speakers give presentations on their cutting edge research in different areas of applied mathematics and share their industrial work experience with students. Invited speakers' presentations are advertised and open to the entire IUP community.
? S-COAM will also partially sponsor the IUP's annual spring Sigma-Xi lecture.
? Most continuing recipients are scheduled to give short oral presentations based on their research/class projects in Spring 2011 in preparation for their participation in local/regional conferences.
? Students will explore workforce and career options through career or advanced study related workshops.

Outreach Activities:

The following activities are advertised and open to the entire IUP community.
? Three mathematical software workshops (LINGO, SAS, and Arena) were offered in Fall 2010. We plan to offer a series of two Matlab workshops and a Mathematica workshop in Spring 2011. There were a total of 21, 21, and 11 persons attending SAS, LINGO, and Arena workshops, respectively.
? Dr. David Ross, a SIAM visiting lecturer from RIT, gave two presentations and a Q&A section on Nov. 3, 2010. A speaker from INFORMS Speakers Program is invited to visit IUP in the spring semester. These two speakers give presentations on their cutting edge research in different areas of applied mathematics and share their industrial work experience with students. Invited speakers' presentations are advertised and open to the entire IUP community. The Penn, the student newspaper of IUP, also reported Dr. Ross's visit. There were at least 50 and 30 persons attending Dr. Ross's morning and evening presentations. The scholarship cohort students and three additional undergraduates also actively participated in Dr. Ross's Q&A session.
? S-COAM will also partially sponsor the IUP's annual spring Sigma-Xi lecture.
? Director Mark Anthony from IUP Career Development Center gave a presentation on career opportunities and job hunting preparation in December, 2010. We also plan to offer an informational workshop on exams for graduate schools and entry-level licensing exams in Spring 2011.

Journal Publications

Books or Other One-time Publications

Web/Internet Site

URL(s):

http://www.iup.edu/page.aspx?id=94513

Description:

This site provides information for prospective applicants and current scholarship recipients. It also announces public events supported by the grant.

This page is linked from the Mathematics Department (www.iup.edu/math) by clicking on the S-COAM information section link.

Other Specific Products

Contributions

Contributions within Discipline:

Contributions to Other Disciplines:

Contributions to Human Resource Development:

1. The grant facilitates mentoring in science and engineering areas.

Students are connected with working professionals via MentorNet to exchange questions and receive career advice.

2. By providing scholarships, the grant enables enhancement of the performance, skills, and attitudes of members of underrepresented groups thus improving their access to and retention in research and teaching careers.

The grant supports students with scholarships in their pursuit of science and mathematics majors (13 supported students during the fall 2010 with 9 additional scholarship offers for the spring). Additionally three of these students graduated in December (one Master's degree, two Bachelor's degrees).

The cohort during the fall semester has nine female students out of the total 13 with one Black/African-American, one Latino/Hispanic, and one Asian. The nine additional scholarship offers issued for the spring semester include support for one Native American/American Indian, one Black/African-American, and one Asian.

As part of the scholarship program, supported students successfully complete additional mathematics course requirements which further their ability to pursue advanced studies, perform research, and to apply and incorporate more quantitative methods in their careers and/or teaching.

The grant also supports colloquia and workshops for the IUP community furthering participants' understanding and ability to utilize mathematics and science.

Students in the scholarship cohort improve their communication skills by giving research presentations and receiving peer feedback at monthly meetings.

3. The grant provides exposure to science and technology for non-scientist members of the public.

Scholarship recipients are asked to participate in an annual spring university-wide Scholar's Forum where they present their mathematical and scientific projects to the entire IUP community.

Students completing student teaching and internships expose the general public to mathematics and science.

Contributions to Resources for Research and Education:

The grant provides additional software (Lingo, SAS, Arena, Matlab) for IUP's computer laboratories expanding the ability to use state of the art packages in both education and research.

Contributions Beyond Science and Engineering:

Conference Proceedings

Special Requirements

Special reporting requirements:

In another NSF report we have supplied demographic information and the scholarship amount for each recipient.

Change in Objectives or Scope: None

Animal, Human Subjects, Biohazards: None

Categories for which nothing is reported:

Any Journal

Any Book

Any Product

Contributions: To Any within Discipline

Contributions: To Any Other Disciplines

Contributions: To Any Beyond Science and Engineering

Any Conference

NSF-Report-Activities
Items in bold are our project goals and objectives. Activities completed in Fall 2010 or scheduled to complete in Spring 2011 are listed under appropriate sections.

Increase numbers of students with majors or minors in Mathematics

- **Increase recruitment of students attending the M.S program in Applied Mathematics at IUP through efforts focused on the Pennsylvania State System of Higher Education and regional colleges**
  - In summer 2010, emails or brochures were sent to the chairs of related departments as well as the contact persons listed on various minority associations in Math and Science fields in Pennsylvania and nearby states.
  - Recruiting trips to colleges in the Pennsylvania State System of Higher Education and regional colleges are planned for Spring 2011.
  - Brochures were provided to the Director of Marketing in the School of Graduate Studies and Research to advertise the program in various recruiting events.
  - Emails, letters, and/or brochures were sent to IUP alumnus and lists of students who took GRE in PA and nearby states.
- **Expand recruitment of STEM undergraduates from regional community colleges**
  - Email or brochures were sent to the chairpersons of related departments in regional community colleges.
  - Emails and letters were sent to transfer students from lists provided by the Office of Admission.
  - Brochures were provided to Office of Admission to advertise the program in their recruiting trips.
- **Increase retention of undergraduate students majoring in mathematical areas at IUP**
  - Multiple emails were sent to students in the College of Natural Science and Mathematics with 3.0 GPA who were close to or at least at the junior standing; female and minority students also received additional emails announcing this scholarship opportunity. Emails were sent to the chairs of departments in the College to solicit qualified students and co-organize events. Various minority associations at IUP were contacted to advertise the S-COAM program; and brochures and flyers were delivered to their offices for display.

Strengthen academic environment for entire department

- Co-PIs determine math course requirements for each student after carefully reviewing each individual's academic schedule and mathematical background. Each recipient is required to take additional mathematics courses and participate in at least one workshop/colloquium per month.
- In monthly meetings, the cohort activities include: orientation name games, mock interviews, resume critiques, and practice and critique of oral presentations. The cohort also shares an office space, Stright Hall 205.
- Every student selects his/her own mentor through MentorNet based on his/her own career/demographic preferences.
- Three mathematical software workshops (LINGO, SAS, and Arena) were offered in Fall 2010. We plan to offer a series of two Matlab workshops and a Mathematica workshop in Spring 2011. All workshops are announced to the entire IUP community through email.
- Dr. David Ross, a SIAM visiting lecturer from RIT, gave two presentations and a Q&A section on Nov. 3, 2010. A speaker from INFORMS Speakers Program is invited to visit IUP in the spring semester. These two speakers give presentations on their cutting edge research in different areas of applied mathematics and share their industrial work experience with students. Invited speakers' presentations are advertised and open to the entire IUP community. The Penn, the student newspaper of IUP, also reported Dr. Ross's visit.
  http://www.thepenn.org/news/math-department-welcomes-guest-lecturer-1.1740302
- S-COAM will also partially sponsor the IUP's annual spring Sigma-Xi lecture.
- Most continuing recipients are scheduled to give short oral presentations based on their research/class projects in Spring 2011 in preparation of their participation in local/regional conferences.
- One student received a financial support of $380 for attending a state-wide conference in Fall 2010. We anticipate at least five students will participate or present in local/regional conferences in Spring 2011.

Ongoing broader impact

- **Students will improve their communication and networking skills through participation in the MEAN mentoring activities.**
  - In monthly meetings, the cohort activities include: orientation name games, mock interviews, resume critiques, and practice and critique of oral presentations. The cohort also shares an office space, Stright Hall 205.
  - A scholarship banquet will be held in Spring 2011. All scholarship recipients and their invited guests come together to celebrate their accomplishments.
  - MentorNet is a e-mentoring program matching students with professionals in science and engineering for one-on-one guided relationships. Every student selects his/her own mentor through MentorNet based on his/her own career/demographic preferences.
- **Students will explore workforce and career options.**
  - Director Mark Anthony from IUP Career Development Center gave a presentation on career opportunities and job hunting preparation.
  - We also plan to offer an informational workshop on exams for graduate schools and entry-level licensing exams in Spring 2011.

NSF-Report-Finding
Items in bold are our project goals. The findings are listed under relevant sections.

Increase numbers of students with majors or minors in Mathematics
Three students majoring in science declared an additional minor in mathematics. One of these science majors was previously majoring in nursing. The results from the survey show that 90% of respondents indicated that monthly meetings improve their commitment to continue in their current academic programs.

Strengthen academic environment for entire department

- All Fall 2010 students in the cohort group met the GPA target (>3.0 for undergraduate students and >3.2 for graduate students) and mathematics course requirements for Spring 2011 renewal. Three students graduated in December, 2010.
- Among 13 students in Fall 2010, 12 students attended three or more workshops/colloquia/conferences. Continuing students who attended less than four workshops/colloquia in Fall 2010 are required to attend additional events in Spring 2011. This active participation represents a change from students' self-reported prior attendance (increase for most students with nine of 13 students reporting no attendance in the previous year).
- There were a total of 21, 21, and 11 persons attending SAS, LINGO, and Arena workshop, respectively.
- There were at least 50 and 30 persons attending Dr. Ross's morning and evening presentations. The scholarship cohort students and three additional undergraduates also actively participated in Dr. Ross's Q&A session.
- The results of the survey show that 90% of respondents indicated that participation in the scholarship cohort increased their ability to network with faculty.
- The results of the survey show that 100% of respondents indicated that participation in the scholarship cohort increased their ability to network with other students.
- The results of the survey show that 90% of respondents indicated that participation in the scholarship cohort increased their feeling of connection with other mathematics and science students.

Ongoing broader impact

Students in the program were asked to provide feedback on how the program impacted or changed their educational goals. Below are comments indicating the program's ongoing impact.

"In addition, before becoming a member of the S-COAM program, I intended to take only the math classes required for my degree and wasn't really interested in taking any additional math courses. Now, however; I truly would like to take as many math courses as possible throughout my college years. There are so many branches of mathematics and an unimaginable amount of things that can be done with each branch and I would really like to gain a basic knowledge of as many of these branches as possible. After graduation, I hope to be able to use and apply as much of what I have learned mathematically as possible."

"In recent months, S-COAM has helped me get connected to MentorNet, a website dedicated to connecting students to mentors in the fields of their study. I found this process to be highly beneficial in creating social links for easier transition from the academic to the professional environment; hopefully, these connections will bring me into a successful career. My mentor has been very helpful in guiding and motivating me when applying to various career opportunities. I'm not sure where these applications will take me but I'm persistent in pursuing that "open door" opportunities. If nothing else, S-COAM has taught me that without great effort and right connections, it's hard to make it in professional society."

“However, through this scholarship, I have learned the important of math within my major courses and future career which has only influenced me to continue taking additional math courses for the rest of my educational career.”

“Through the various workshops and seminars, I gained a newfound inspiration and drive to pursue a more advanced degree and research within my field. These allowed me to understand the relevance of math in the field of physics and also enabled to learn software to manipulate mathematical equations through. Throughout the course of the semester, I was also given the opportunity to interact with Indiana University of Pennsylvania’s mathematics graduate students which allowed me to gain a working knowledge of what is necessary to succeed in the scientific community.”

“Listening to Dr. David Ross and others has caused me to realized more than ever before that having some significant research experience outside of the classroom maybe an outstanding way for me to show independence, a willingness to work hard, and an overall will to succeed. For this reason, I have really been pushing myself at a pace … at which we will be able to submit an article for publication before I graduate.”